UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
CHEMICAL SAFETY AND
POLLUTION PREVENTION

MEMORANDUM:

To: Roseanna Louie

From: Kevin Sweeney, Senior Entomologist, Insecticides Branch

Date: 19 April 2011

Subject: PRODUCT PERFORMANCE DATA EVALUATION RECORD

DP barcode: 440590
Decision no.: 384133
Submission no: 883151
Action code: R310
Product Name: Deltamethrin 543
EPA Reg. No or File Symbol: 432-RLRU
Formulation Type: Soluble concentrate
Ingredients statement from the label with PC codes included:

Deltamethrin (PC code 097805) 4.75%

Application rate(s) of product and each active ingredient (g/m^2):
Indoors and Outdoors:
0.25 fl oz. (7.5 ml) per 1000 square feet; equivalent to 1 gallon of 0.01% deltamethrin finished dilution per 1000 square feet.
0.75 fl. oz (22.7 ml) per 1000 square feet; equivalent to 1 gallon of 0.03% finished dilution per 1000 square feet.
1.50 fl. oz. (45.4 ml) per 1000 square feet; equivalent to 1 gallon of 0.06% finished dilution per 1000 square feet.

The fire ant mound treatment used 1-2 gallon of 0.06% dilution.

Re-application interval is as needed but must be a minimum of 21 days but the label also makes claims of up to 90 days. There are also environmental safety claims.

I. Action Requested: Review submitted efficacy data included in MRIDs 4822408, -09, 10, -11 and –12 to support product efficacy and bridging of the efficacy data from EPA Reg. No. 432-763 to this product to add public health and wood destroying arthropods to the labels.

II. Background: This is a new product that is similar in deltamethrin content and use pattern to EPA Reg. No 432-763. This new product uses a different polymer to make the formulation more stable and longer lasting. The registrant claims that the product will last up to 90 days indoors and outdoors but listed a 21 day retreatment interval as the minimum retreatment interval, which is the same for the cited product. The new studies that were submitted were done to support a bridging argument from EPA Reg. No. 432-763 and to support rainfastness claims as well as the environmental safety claims on the label.

III. Summary: The registrant conducted dozens of new efficacy studies with many species, both indoors and outdoors, to evaluate the effectiveness of the new product for up to 90 days. Concurrently, these studies compared the effectiveness of the new product against the currently registered Suspend SC (EPA Reg. No. 432-763) for the purpose of showing equivalency in order to bridge efficacy data and labeling from this registered product. Residual effectiveness was evaluated on unpainted wood, painted wood, concrete board, sand, and glazed ceramic tile. Exposure times varied but most studies exposed arthropods to the treated surfaces for 15-30 minutes followed by transfer to clean containers. Other studies were conducted using 24 hours non-choice exposure tests to show equivalency to Suspend SC with major public health pests as representative species. This submittal also included indoor residual spraying evaluations according to World Health Organization Pesticide Evaluation Scheme (WHOPES) guidance resulting in a minimum of 52 weeks effectiveness against the mosquito, *Anopheles gambiae*, a major malaria vector in Africa.

Of importance to these evaluations is the assumption that Suspend LC, a 62.5 g deltamethrin /Liter formulation with a new polymer that was originally developed for indoor spraying programs to control malaria, is equivalent to the currently registered Suspend SC (EPA Reg. No. 432-763), a 50g deltamethrin/Liter. Both formulations are to be applied at the same rate of deltamethrin per square meter. The efficacy data showed that Suspend LC and Suspend SC are equivalent. Second, EPA File Symbol 432-RLRU, a 50g deltamethrin/Liter formulation, is equivalent to Suspend LC based slight differences in inert ingredient amounts and equal efficacy. Therefore, EPA File Symbol 432-RLRU is equivalent to Suspend LC allowing the registrant to bridge efficacy data and labeling from Suspend SC to EPA File Symbol 432-RLRU.

IV. MRID Review Summary:

MRID 48228408 Reid, B. and J. Brill. 2010. Product description for Deltamethrin 543 for bridging between formulations. Bayer Environmental Science, Raleigh, NC USA

Good Laboratory Practices: This study was not conducted in accordance with Good Laboratory practices as described in 40 CFR Part 160.

Purpose: To support a bridging rationale between Suspend LC and EPA File Symbol 432-RLRU in order to use the submitted efficacy data to support the registration of EPA File Symbol 432-RURL. The study also discusses the properties of the polymer added to this formulation.

Materials and Methods:

Test material(s): Deltamethrin 543, EPA File Symbol 432-RLRU, is a 4.75% deltamethrin based suspension concentrate (SC) formulation that can diluted with water. The discussion in this study contrasts the physical/chemical properties of the formulation as related to environmental stability and disposition of technical deltamethrin particles to EPA Reg. No. 432-763, K-Orthine SC Insecticide, also known by the alternate brand name Suspend SC. The deltamethrin active ingredient application rate of the two formulations is the same.

Describe test containers, chambers and/or apparatus (include site description and location) and how the experiment was conducted:

The authors compared droplets from the Suspend SC formulation to those of the Deltamethrin 543 formulation using scanning electron microscopy to demonstrate the differences in the deposition distribution of technical deltamethrin particles between these formulations. The document continues to discuss the Deltamethrin 543 formulation as a 50g ai/L formula that was originally developed as a formula that was 62.5 g ai/L. The Confidential Appendix contains a table that compares the two formulations and all of the inert ingredients. The differences in inert ingredient content are not of significance to the efficacy of the formulation. These formulas are essentially the same. The application rates expressed in terms of active ingredient are the same for Deltamethrin 543 and the 62.5 g ai/L formulation.

RESULTS

Experimental results and study author's conclusion

The scanning electron micrographs show the differences in deltamethrin particle distribution and evaporative properties. Deltamethrin is more evenly distributed on a treated surface after the water evaporates for the Deltamethrin 543 formulation compared to Suspend SC.

The 50g ai/L formulation and the 62.5g ai/L formulation are equivalent based on very similar product chemistry composition.

EPA Entomologist's Conclusions

1. Deltamethrin 543 exhibits deltamethrin deposition characteristics that differ from Suspend SC, which result in a more even application of deltamethrin particles to surfaces.

2. The 50g ai/L and 62.5 g ai/L formulations appear to be equivalent. The deltamethrin application rate is the same and the small differences in inert ingredient levels between the two formulations are not significant to product efficacy.

MRID 48228410 Reid, B. (2010) Residual Persistence of Deltamethrin 543 as Aged in Indoor Environments Against a Range of General Household Pests, Outdoor/Perimeter Pests, and Wood-Infesting Insects. Bayer Environmental Science, Raleigh, NC USA.

Good Laboratory Practices: This study was not conducted in accordance with Good Laboratory practices as described in 40 CFR Part 160.

Purpose: To demonstrate the residual persistence of the 62.5 g deltamethrin/L formulation for 3 months against German cockroaches; carpenter ants, Argentine ants, Pharaoh's ant; house fly; and bed bug when applied to porous and non-porous surfaces. Results are compared to Suspend SC.

Materials and Methods:

Test location: Bayer Environmental Science Research Triangle Park, NC; Bayer CropSciences AG, Environmental Science, Monheim am Rhein, Germany, and BayerCropScience LP, Bayer Environmental Science, Clayton, NC

Test material(s): Deltamethrin 62.5 SC (Suspend LC) contains 62.g of deltamethrin per liter (from an efficacy viewpoint it is similar to EPA File Symbol 432-RLRU, which is 50g deltamethrin/L, because the deltamethrin application rates are the same for both products and the formulas are otherwise nearly identical) and Suspend SC, EPA Reg. No. 432-763, which contains 50g deltamethrin/L.

Test species name, life stage, sex and age: Adult *Blattella germanica,* German cockroach; worker *Monomorium pharaonis,* Pharaoh's ant; worker *Camponotus pennsylvanicus,* Carpenter ant; worker *Linepithema humile,* Argentine ant; adult *Musca domestica,* house fly; and adult *Cimex lectularius,* common bed bug.

Treatments: glazed ceramic tile; vinyl tile, unpainted wood, latex painted wood, and an untreated control (UTC). For German cockroaches greasy tiles and unsealed PVC pipe were also added.
These treatments were used for each of the three dilutions described below and for each of the aged panel treatments.

Number of replicates per treatment: Two *per treatment* but reported in the data tables as a pooled mean.

Number of individuals per replicate: Not stated but BES communicated that their standard protocol uses 10 insects (J. Brill and B. Reid pers. comm. on April 18, 2011)

Experimental conditions: Ambient room conditions. Temperature 24°-26° C. RH not reported.

Describe test containers, chambers and/or apparatus (include site description and location) and how the experiment was conducted:

Application: Three deltamethrin dilutions (w/w) were applied - 0.18, 0.03% and 0.06%. Each of these dilutions was applied at the rate of 1 gal/1000 square feet, which resulted in an active ingredient application rate of 7.5 mg, 12.5 mg, and 25 mg per square meter, respectively. Applications to the surfaces were aged overnight for the first exposure at 1 day included data points at 1, 2 and 24 hours. Bioassays were repeated at 2, 4, 8, and 12 weeks post-treatment with aged surface treatments.

Length of exposure to treatment (time in seconds, minutes or hours): up to 24 hours.

Were tested specimens transferred to clean containers? If so, when? No.

Data or endpoints that were collected/recorded: Knockdown was observed at 1 and 2 hours on day 1. Mortality was reported at 24 hours post-exposure. Untreated controls were treated and observed in the same manner but kept separated from the treatments. Insects were dead when they no longer exhibited any movement.

Were the data analyzed? What statistical analyses were performed?
Means pooled and reported. Means were compared but not by any statistical testing.

RESULTS

Were the raw data included? The original data sheets were retained by the study director and archived. Data were tabulated and reported as % knockdown and % kill.

Protocol amendments and deviations: None were formally reported but the study was not conducted according to GLP.

Were the data were corrected using Abbott's Formula or another applicable formula? No. For nearly all data sets UTC was low. Some of the ant data had high UTC. But no correction was made.

How were the data analyzed? What level of significance was used? What were the confidence intervals around the mean(s)? Was a median value reported?

- Arithmetic means were compared.

Experimental results:

Treatment mortality: In nearly every treatment for all tested pest the treatment mortality was 100% at 24 hours. Less than 100% was achieved on greasy tiles and wall paper but still exceed 90% at the tested rates.

Untreated control mortality: Untreated control mortality was very low in most of the tests.

Cross-trial averages from twenty-nine (29) distinct bioassays for the *Control Efficacy* (% mortality at 24 hours) of 3 applications rates of Deltamethrin 62.5 g/L SC against a range of pests on a variety of surfaces.

Application Rate (mg a.i. / m_2)	fresh	2 week	4 week	8 week	12 week
25.0	100.0%	100.0%	100.0%	100.0%	100.0%
12.5	100.0%	100.0%	100.0%	100.0%	99.6%
7.5	100.0%	98.3%	98.3%	100.0%	98.7%

Knockdown: Knockdown varied among pests but was 75-88% on day 1 and nearly the same level throughout the test up to three months.

Cross-trial averages from twenty-nine (29) distinct bioassays for the *Knockdown Efficacy* (% mortality at 1 hour) of 3 applications rates of Deltamethrin 62.5 g/L SC against a range of pests on a variety of surfaces.

Application Rate (mg a.i. / m_2)	fresh	2 week	4 week	8 week	12 week
25.0	88.0%	85.2%	88.0%	88.0%	90.9%
12.5	80.4%	79.0%	82.9%	86.4%	83.6%
7.5	76.4%	75.1%	78.2%	76.3%	76.1%

Study Authors Conclusions

The results were reported as described above. The author concluded that the Suspend LC product performed equally to the registered Suspend SC product and that both products were efficacious for three months against Adult *Blattella germanica,* German cockroach; worker *Monomorium pharaonis,* Pharaoh's ant; worker *Camponotus pennsylvanicus,* Carpenter ant; worker *Linepithema humile,* Argentine ant; adult *Musca domestica,* house fly; and adult *Cimex lectularius,* common bed bug.

EPA Entomologist's Conclusions:

Suspend LC performed as well as Suspend SC. Based on the bridging argument present in MRID 48228408 and the subject MRID, these data can be used to support the addition of the above pests to the indoor uses for EPA File Symbol 432-RLRU. The data support a three month efficacy claim. Additionally, since Suspend LC and SC performed nearly the same, the registrant should be allowed to cite data from Suspend SC for the indoor pests labeled on EPA File Symbol 432-RLRU.

MRID 48228411 Reid, B. (2010) Residual Persistence of Deltamethrin 543 as Aged in Outdoor Environments against a Range of General Household, Public Health and Outdoor/Perimeter Pests. Bayer Environmental Science

Good Laboratory Practices: This study was not conducted in accordance with Good Laboratory practices as described in 40 CFR Part 160.

Purpose: To demonstrate the residual persistence of the 62.5 g deltamethrin/L formulation (Suspend LC) for 3 months against German, American and Oriental cockroaches; Pharaoh's ant; house fly; malaria mosquito; and bed bug when applied to aged outdoor surfaces. Results were compared to Suspend SC and Cy-Kick or Demand CS. I restricted the discussion to Suspend LC and Suspend SC.

Materials and Methods:

Test location: Bayer Environmental Science Research Triangle Park, NC; Bayer CropSciences AG, Environmental Science, Monheim am Rhein, Germany, and BayerCropScience LP, Bayer Environmental Science, Clayton, NC

Test material(s): Deltamethrin 62.5 SC (Suspend LC) contains 62.g of deltamethrin per liter (from an efficacy viewpoint it is similar to EPA File Symbol 432-RLRU, which is 50g deltamethrin/L, because the deltamethrin application rates are the same for both products and the formulas are otherwise nearly identical) and Suspend SC, EPA Reg. No. 432-763, which contains 50g deltamethrin/L.

Test species name, life stage, sex and age: Adult *Blattella germanica,* German cockroach; *Blatta orientalis* Oriental cockroach; *Periplaneta Americana,* American cockroach; adult worker *Monomorium pharaonis,* Pharaoh's ant; adult *Musca domestica,* house fly; adult *Anopheles gambiae,* malaria mosquito; and adult *Cimex lectularius,* common bed bug.

Treatments: glazed ceramic tile; vinyl tile, unpainted wood, concrete board, and an untreated control (UTC).

These treatments were used for each of the two dilutions described below and for each of the aged panel treatments.

Number of replicates per treatment: at least two *per treatment* were reported.

Number of individuals per replicate: at least five but the number per replicate differed.

Experimental conditions: Ambient conditions. Temperatures varied. Panels were aged outdoors in many of trials and exposed to rainfall and sunlight.

Describe test containers, chambers and/or apparatus (include site description and location) and how the experiment was conducted:

Application: Two deltamethrin dilutions (w/w) were applied - 0.03% and 0.06%. Each of these dilutions was applied at the rate of 1 gal/1000 square feet, which resulted in an active ingredient application rate of 12.5 mg, and 25 mg per square meter, respectively. Applications to the surfaces were aged overnight for the first exposure at 1 day included data points at 24 hours. Bioassays were repeated at 2, 4, 8, and 12 weeks post-treatment with aged surface treatments. The number of surfaces and formulation types differed to some extent in the respective trials.

WHOPES evaluation methods were used for the *Anopheles gambiae* trial to satisfy Indoor residual spraying data. These methods differed and residuality was tested up to 80 weeks. Data points were collected more frequently. These trials compared Suspend SC and Suspend LC.

Length of exposure to treatment (time in seconds, minutes or hours): 15 to 30 minutes.

Were tested specimens transferred to clean containers? If so, when? Yes, at 15-30 minutes post-treatment.

Data or endpoints that were collected/recorded: Mortality was reported at 24 hours post-exposure for each testing interval. Untreated controls were treated and observed in the same manner but kept separated from the treatments. Insects were dead when they no longer exhibited any movement. Rainfall data were reported to demonstrate weathering and rainfastness. Some trials reported one hour knockdown values.

Were the data analyzed? What statistical analyses were performed?
Means pooled and reported. Means were compared with $p = 0.05$ using Tukey's HSD. WHOPES trials were analyzed differently as specified by WHOPES.

RESULTS

Were the raw data included? The original data sheets were retained by the study director and archived. Data were tabulated and reported as % knockdown and % kill.

Protocol amendments and deviations: None were formally reported but the study was not conducted according to GLP.

Were the data were corrected using Abbott's Formula or another applicable formula? No. For nearly all data sets UTC was low.

How were the data analyzed? What level of significance was used? What were the confidence intervals around the mean(s)? Was a median value reported?

- Tukey's HSD
- Graphical comparisons of residuality vs. mortality and rainfall over time.

- WHOPES methods as described in their guidance 2006.3:Guidelines for testing mosquito adulticides for indoor residual spraying.

Experimental results:

Treatment mortality: In nearly every treatment for all tested pest the treatment mortality was 100% at 24 hours for all periods for Suspend LC. Suspend LC outperformed Suspend SC, especially on alkaline surfaces such as concrete. Suspend LC lasted at least 90 days on the tested surfaces following aging with rainfall and sunlight exposure.

Untreated control mortality: Untreated control mortality was very low in most of the tests. However, some concrete data was not reported due to poor results in the UTCs.

Knockdown: Knockdown was comparable between Suspend LC and Suspend SC.

Study Authors Conclusions

The author concluded that the Suspend LC product performed equally to the registered Suspend SC product and that both products were efficacious for three months against Adult *Blattella germanica,* German cockroach; *Blatta orientalis* Oriental cockroach; *Periplaneta Americana,* American cockroach; adult worker *Monomorium pharaonis,* Pharaoh's ant; adult *Musca domestica,* house fly; adult *Anopheles gambiae,* malaria mosquito; and adult *Cimex lectularius,* common bed bug. Therefore, this equivalent efficacy supports the citation of the Suspend SC database for product performance and labeling of the pests on that label EPA Reg. No. 432-763.

EPA Entomologist's Conclusions:

Suspend LC performed as well as Suspend SC. Based on the bridging argument present in MRID 48228408 and the subject MRID, these data can be used to support the addition of the above pests that actually live outdoors and citation of outdoor pest Suspend SC data. The data support a three month efficacy claim for outdoor pests.

MRID4822409 Reid, B. (2010) Efficacy Bridging Report for Deltamethrin 543 for Control of General Household, Public Health, Outdoor/Perimeter, and Wood-Infesting Insect Pests

Good Laboratory Practices: This study was not conducted in accordance with Good Laboratory practices as described in 40 CFR Part 160.

Purpose: To demonstrate the residual persistence of the 62.5 g deltamethrin/L formulation for 3 months against many pests in laboratory trials using fresh surface residues. Results were compared to Suspend SC.

Materials and Methods:

Test location: Bayer Environmental Science Research Triangle Park, NC; Bayer CropSciences AG, Environmental Science, Monheim am Rhein, Germany, and BayerCropScience LP. Contractor labs were also utilized.

Test material(s): Deltamethrin 62.5 SC (Suspend LC) contains 62.g of deltamethrin per liter (from an efficacy viewpoint it is similar to EPA File Symbol 432-RLRU, which is 50g deltamethrin/L, because the deltamethrin application rates are the same for both products and the formulas are otherwise nearly identical) and Suspend SC, EPA Reg. No. 432-763, which contains 50g deltamethrin/L.

Test species name, life stage, sex and age: adult or worker life stage of the following species was tested:

Blattella germanica, German cockroach
Periplaneta americana, American cockroach
Periplaneta fuliginosa, smokybrown cockroach
Acheta domesticus, house cricket
Forficula auricularia, European earwig
Monomorium pharaonis, Pharaoh's ant
Camponotus pennsylvanicus, Carpenter ant
Linepithema humile, Argentine ant
Tapinoma sessile, Odorous house ant
Aedes aegypti, yellow fever mosquito
Culex quinquefasciatus, southern house mosquito
Musca domestica, house fly
Stomoxys calcitrans, stable fly
Sarcophaga bullata, flesh fly
Calliphora vomitoria, blue bottle fly
Cimex lectularius, common bed bug
Rhipicephalis sanguineus, brown dog tick
Amblyomma americium, Lone Star tick
Lactrodectus mactans, black widow spider
Laxosceles apache, brown recluse spider
Lycosa spp., wolf spider
Sitophilus granarius, grain weevil
Tribolium confusum, confused flour beetle
Oryzaephilus surinamensis, saw-toothed grain beetle
Rhyzopertha dominica, lesser grain borer
Alphitobius diaperinus, lesser mealworm
Lepisma saccharina, silverfish
Porcellio scaber, common rough woodlouse
Boisea trivittatus, boxelder bug
Harmonia axyridis, Asian lady beetle

Treatments: glazed ceramic tile; unpainted wood, sand and an untreated control (UTC). These treatments were used for each of the three dilutions described below and for each of the aged panel treatments. Only a few of the tests had sand substrates.

Number of replicates per treatment: at least two *per treatment* were reported.

Number of individuals per replicate: at least five but the number per replicate differed.

Experimental conditions: Ambient conditions. Temperatures varied. Panels were aged.

Describe test containers, chambers and/or apparatus (include site description and location) and how the experiment was conducted:

Application: Three deltamethrin dilutions (w/w) were applied – 0.01%, 0.03% and 0.06%. Each of these dilutions was applied at the rate of 1 gal/1000 square feet, which resulted in an active ingredient application rate of 7.5 mg, 12.5 mg, and 25 mg per square meter, respectively. Some studies used rates as low as 4.1 mg per square meter. Applications to the surfaces were aged overnight for the first exposure at 1 day included data points at 24 hours and 48 hours. The number of surfaces and formulation types differed to some extent in the respective trials. There were also tests to compare knockdown between the Suspend LC and Suspend SC formulations.

Length of exposure to treatment (time in seconds, minutes or hours): up to 48 hours.

Were tested specimens transferred to clean containers? If so, when? No.

Data or endpoints that were collected/recorded: Mortality was reported at 24 hours post-exposure. Untreated controls were treated and observed in the same manner but kept separated from the treatments. Insects were dead when they no longer exhibited any movement. Some trials reported one hour knockdown values.

Were the data analyzed? What statistical analyses were performed?
Means pooled and reported.

RESULTS

Were the raw data included? The original data sheets were retained by the study director and archived. Data were tabulated and reported as % knockdown and % kill.

Protocol amendments and deviations: None were formally reported but the study was not conducted according to GLP.

Were the data were corrected using Abbott's Formula or another applicable formula? No. For nearly all data sets UTC was low.

How were the data analyzed? What level of significance was used? What were the confidence intervals around the mean(s)? Was a median value reported?

- Tukey's HSD
- Graphical comparisons of dose vs. mortality
- In some of the contractor studies raw data were analyzed using LSD, CV, and Duncan's New Multiple Range Test ($p = 0.05$) using Gyllings Agriculture Research Manager.

Experimental results:

Treatment mortality: In nearly every treatment for all tested pest the treatment mortality was 100% at 24 hours for all periods for Suspend LC. Suspend LC was equivalent to Suspend SC.

Untreated control mortality: Untreated control mortality was very low in most of the tests. However, some concrete data was not reported due to poor results in the UTCs.

Knockdown: Knockdown was comparable between Suspend LC and Suspend SC but Suspend SC appeared to be more active against some of the tested arthropods.

Study Authors Conclusions

The author concluded that the Suspend LC product performed equally to the registered Suspend SC product and that fresh residues from both products, when aged at least 3 hours, were efficacious against the tested arthropods. Therefore, this equivalent efficacy supports the citation of the Suspend SC database for product performance and labeling of the pests on that label EPA Reg. No. 432-763.

EPA Entomologist's Conclusions:

Suspend LC performed as well as Suspend SC. Based on the bridging argument present in MRID 48228408 and the subject MRID, these data can be used to support the addition of the above pests and citation of Suspend SC data.

MRID 48228412 Xu, T. and R. Jones. (2010) Comparison of Rainfall Fastness of New Formulation of Deltamethrin from Glazed Ceramic Tile and Concrete Slabs Using a Rainfall Simulator. Bayer Environmental Science.

This study compared rainfastness for the new formulation using chemical analytical methods and analysis. This is not an efficacy study under the 810 Product Performance Guidelines but should be reviewed by chemists and environmental scientists specializing in fate studies.

I did not review it.

V. EPA Entomologist Recommendations:

(1) Labeling:
a. The submitted and cited data support the addition of the labeled pests.
b. Change 'Residual Control lasts for 90 days or longer' to 'Residual control lasts for 90 days'.
c. Rainfastness claims: I did not review the rainfastness study, however, the efficacy data conducted with aged panels under actual weather conditions show that the formulation is rainfast.

(2) Data:
a. The bridging argument and supporting efficacy data show that the subject product, EPA File Symbol 432-RLRU, is equivalent to Suspend SC, EPA Reg. No. 432-763. Therefore, the registrant may cite the efficacy data supporting the latter product and use the same labeled use patterns and efficacy claims.
b. The subject product is effective at the lowest application rate on the label.